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Planting and Care of Hybrid Poplar



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100 **Planting and Care of Hybrid Poplar []**

by Maurice E. Demeritt, Jr.

✓ Hybrid poplar is one of the fastest growing trees in the [Northeastern United States]. The wood can be used for pulpwood, lumber, veneer, matchwood, and firewood. These trees also can be used as shade trees, wind screens, and to stabilize sites such as steep banks, landfills, spoil banks, or borrow pits. Hybrid poplars exhibit many different crown and leaf shapes due to their diverse parentages (Figs. 1-5). Although hybrid poplars seem to be the answer to all revegetation problems, they are not because specific requirements have to be met for their successful establishment.

Planting Site Requirements

Hybrid poplars grow best on well-drained soils that are at least 39 inches in depth to an impermeable



Figure 1.--Example of different hybrid poplar leaves from different clones.

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Figure 2.--Lombardy poplar (Populus nigra var italica)--not a hybrid poplar.

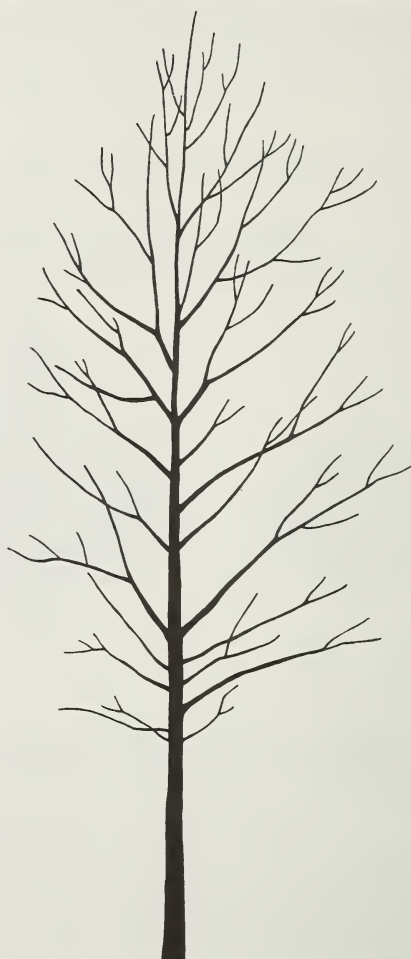
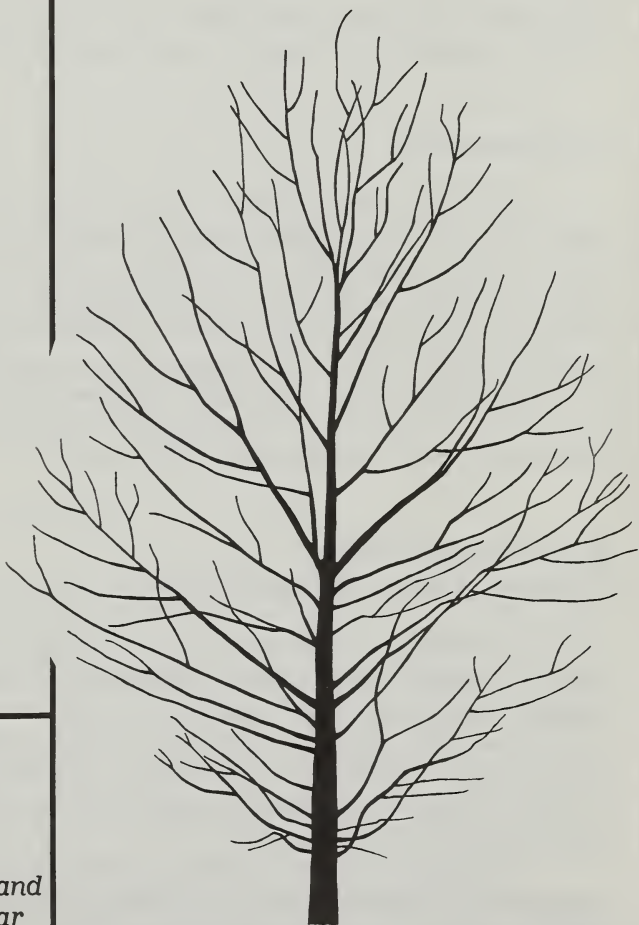
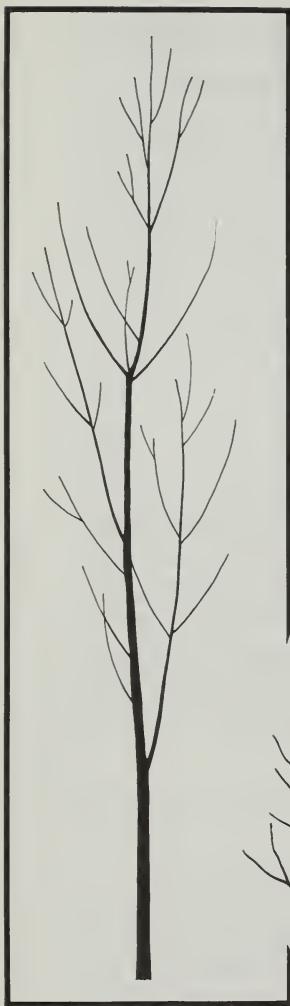


Figure 3.--Typical hybrid poplar crown.

*Figure 4.--Narrow and
sparse hybrid poplar
crown.*



*Figure 5.--Broad and
dense hybrid poplar
crown.*

zone and to the water table. The soil should be medium textured—silty or loamy—and of a granular structure with no compaction. Moisture should be available to the trees especially throughout the growing season from April to October. The soil should be fertile with: (1) high levels of available nitrogen-phosphorus-potassium (NPK), (2) ample micronutrients, and (3) a pH between 6 and 8. Soils classified as extremely well drained or poorly drained will be very poor sites on which to grow poplars and will stress the trees so much that they will become candidates for insect and disease problems.

Site Preparation

Hybrid poplars are not strong competitors and thus must be planted on sites kept free of other trees, weeds, brush, and grass. Herbicides such as glyphosate may be applied to the site to kill vegetation before site preparation. The planting site should be prepared so it could be planted to corn rather than dormant cuttings or rooted trees. The site must be plowed and disced or rototilled. If stump and brush must be removed, exercise extreme care so top soil remains.

Selection and Storage of Hybrid Poplar Cuttings or Trees

Cuttings should be at least three-eighths of an inch in diameter and at least 10 inches in length. Longer cuttings may be required on drier sites where a few inches of surface soil dries out. Buds and bark should adhere tightly to the cutting. The cutting should be free of insect eggs and cavities, cankers or diseases, and any mechanical damage.

Although often overlooked, proper selection and storage of planting stock are necessary for the establishment of a successful plantation. Improper

storage of stock is one of the most common reasons for plantation failure. Planting stock should be stored just above freezing and kept from desiccating before planting. Cuttings may be stored up to 3 months in a plastic bag in a manual defrost refrigerator with good results. Automatic defrost refrigerators desiccate cuttings stored in plastic bags. Rooted trees are more difficult to store because of their size and volume. Usually, rooted trees are planted as soon as they arrive.

It is possible to produce cuttings by establishing a small stool bed, which is a nursery area maintained for the production of dormant cuttings. Each tree's new growth is harvested each year for cuttings leaving a "stool" where the next season's sprouts will form and grow. It takes about 4 years to produce adequate cuttings from a stool-bed establishment. Cuttings also can be harvested from 1-year-old branch tips of juvenile and mature trees during the winter months.

It is important to select the proper hybrid poplar clone for your purposes and region. Only male clones should be selected for amenity purposes. Consult your local service forester for the proper clone for your purposes and region.

Planting of Cuttings

Cuttings can be machine or hand planted. Before planting, soak cuttings in 60°F water for 6 to 8 days for the best establishment. Cuttings stored a short period will require only 1 to 2 days of soaking to give adequate establishment. The cuttings at the planting site should be kept moist and cool and should not be allowed to overheat in plastic bags or other material. Cuttings should be planted in the ground, base down, with only two buds exposed. It is important that the soil is firmly tamped around each cutting so there is good soil contact around the cutting and air pockets are kept to a minimum. Rooted trees may also be planted by

machine or hand, and the soil needs to be firmly packed around and over the roots.

Spacing

Opinions vary as to how far apart cuttings and rooted trees should be planted. Spacing is often determined by the productivity of the site and the purpose of the plantation (Figs. 6 and 7). For most purposes, spacings should be no less than 3 x 3 feet nor greater than 15 x 15 feet. A general rule of thumb for thinning is that the number of feet apart is the number of years from planting to the first thinning—for example, trees spaced 10 x 10 feet should be thinned by 10 years of age. With close initial spacing, the crowns will close early and extensive cultivation can be terminated because the crowns will shade out grass and weeds.



Figure 6.--Hybrid poplar plantation at about 6 years; spacing is 12 x 12 feet.



Figure 7.--Hybrid poplar plantation at about 12 years; spacing is 12 x 12 feet.

Cultivation

Cultivation is essential to control weeds and grass, at least for the first two growing seasons on most sites. Cultivation should be only deep enough to expose grass and weed roots but not deep enough to disturb tree roots. Cultivation must be frequent to be effective because low weeds and grass will inhibit hybrid poplar growth as much as overtopping ones. Chemical weed and grass control can be effective if applied correctly. Information on chemical and application rates can be obtained from your local service forester or agricultural agent.

Fertilization

The amount and type of fertilizer will depend on existing site conditions. A soil test before planting will determine the amount and timing of fertilizer or lime application, or both. Fertilizer seems economically feasible only on the poorer sites that have been impoverished by agricultural crops. Except for soil right around the tree, fertilization should be delayed until the stand is established so weeds and grasses do not respond to the application. Fertilizers keep the stand growing vigorously and seem to decrease the incidence of insects and diseases.

Pruning

Pruning is a cultural practice that will depend on the desired end product. Pruning is not necessary if the wood is used for pulp or firewood, but is desirable if the end product is matchwood, lumber, or veneer. Epicormic branches may have to be removed occasionally to ensure clear boles. Spring pruning is desirable because wounds heal quicker when the tree is actively growing. Closely spaced trees will naturally prune but may reduce growth and vigor in the stand.

Insects and Diseases

Insect and disease organisms are a continuing threat to hybrid poplar. The diseases and insects are numerous and to become acquainted with their threat, consult standard references such as: R. C. Morris, et al., 1975, *Insects and Diseases of Cottonwood*, USDA Forest Service General Technical Report SO-8, 37 pages; and A. G. Davidson and R. M. Prentice, 1968, *Insects and Diseases, In Growth and Utilization of Poplars in Canada*, J. S. Maini, J. H. Cayford, editors, Department of Forest Rural Development, Publication 1205, pages 116 to 144.

Pesticide Precautionary Statement

Pesticides used improperly can be injurious to man, animals, and plants. Follow the directions and heed all precautions on the labels.

Store pesticides in original containers under lock and key—out of the reach of children and animals—and away from food and feed.

Apply pesticides so that they do not endanger humans, livestock, crops, beneficial insects, fish, and wildlife. Do not apply pesticides when there is danger of drift, when honey bees or other pollinating insects are visiting plants, or in ways that may contaminate water or leave illegal residues.

Avoid prolonged inhalation of pesticide sprays or dusts; wear protective clothing and equipment if specified on the container.

If your hands become contaminated with a pesticide, do not eat or drink until you have washed. In case a pesticide is swallowed or gets in the eyes, follow the first aid treatment given on the label, and get prompt medical attention. If a pesticide is spilled on your skin or clothing, remove clothing immediately and wash skin thoroughly.

Do not clean spray equipment or dump excess spray material near ponds, streams, or wells. Because it is difficult to remove all traces of herbicides from equipment, do not use the same equipment for insecticides or fungicides that you use for herbicides.

Dispose of empty pesticide containers promptly. Have them buried at a sanitary land-fill dump, or crush and burn them in a level, isolated place.

NOTE: Some states have restrictions on the use of certain pesticides. Check your state and local regulations. Also, because registrations of pesticides are under constant review by the Environmental Protection Agency, consult your local forest pathologist, county agricultural agent, or state extension specialist to be sure the intended use is still registered.



Use Pesticides Safely
FOLLOW THE LABEL

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